

This page intentionally left blank.

them will recognize themselves, but the public must not discover them. To insure this, the writer must refrain from telling the very facts that would give the story its most interesting touches.

The second difficulty is that a description of the activity of a normal family of respectability and usefulness is never as interesting as the bizarre experiences of the abnormal.

Hence the reader will find in the following sketches only such facts as will show the thoroughly normal and regular family life of the intelligent citizens of a commonwealth.

In a certain village of New Jersey, lying picturesquely on the crest of a hill, is a graveyard where Martin Kallikak Sr. and several of his immediate descendants lie peacefully at rest. He had in his lifetime a great passion for the accumulation of land and left large farms to most of his children. These farms lie in the vicinity of the aforesaid village. Some of them are still in the possession of his descendants, while others have passed into strangers' hands. On the hill above this village is a stucco farmhouse in a fine state of preservation. It belonged to Amos — lineal descendant of one of the colonial governors of New Jersey and to Elizabeth, daughter of Martin Kallikak Sr. The farm is, at pres-

ent, in the possession of the widow of Elizabeth's grandson, the latter having been a minister in New York City. In renting the farm, the family has always retained a wing of the house, which, although remodeled, still presents much the same appearance as in the days of Amos and Elizabeth. There is the same fireplace, the same high-backed chairs, the clock, desk, and china cupboard. Every summer the family has come back to the old place to enjoy the country air, the luscious grapes and other fruit planted by their ancestor.

On another hill, less than two miles distant, lives a granddaughter of the same Amos and Elizabeth. Her father had been, in his day, one of the wealthiest and most prominent citizens of the community. In an old desk, part of his inheritance from his mother, was found a number of valuable papers belonging to the Kallikak family. One of these is the famous deed of the original purchase made in 17— by Casper Kallikak, signed by the governor of the colony. These papers the daughter guards with great pride. She is a woman of ability and manages her large farm with admirable skill. The splendid old homestead, which has been remodeled and fitted up with all modern conveniences, was built by her mother's ancestor. Although she is deeply interested in all family matters, she has been too much en-

grossed in business affairs to have given this subject much attention. A daughter of hers, however, who has inherited the taste, has been able to make up for her mother's lack in this respect. The young woman is now married, and her oldest son bears the united name of his two ancestors, the colonial governor and Martin Kallikak.

Miriam, the oldest daughter of Martin Sr., married a man who was a carpenter and a farmer. Although of good family, yet, for some unknown reason, he was not personally acceptable to Martin or his wife. Miriam died when only thirty-six years old, and her husband married again. In his will, Martin makes no mention of his grandchildren by this daughter. They have been respectable farming people, but have never held the same social position as the other members of the family.

Martin's third daughter, Susan, married a man descended from a family conspicuous in the colonial history of New Jersey and which counts among its members one of the founders of Princeton University, while a collateral branch furnished a signer to the Declaration of Independence. One of Susan's sons is still living, having attained the advanced age of ninety-eight. He is a resident of the town that bears his family name and has always been conspicuous as a loyal and upright

citizen. To-day, the old man has quite lost his mental power but retains his courteous manner and placid gentlemanly countenance.

In a central region of northern New Jersey, remote from any direct line of travel, lies a town named for one of the families connected with the earliest settlement of the colony. This family rose to distinction in many of its branches, but honors itself chiefly for having produced one of the most brilliant advocates of the cause of Independence of which New Jersey can boast. He was descended on his mother's side from the first president of Princeton University and took his degree there before he was sixteen years of age. From this family, Martin Kallikak's youngest son, Joseph, chose his wife. It is interesting to note that the descendants of this pair have shown a marked tendency toward professional careers. One daughter, however, married a farmer, and most of her descendants have remained fixed to the soil. Another daughter married a prominent merchant, and this line, having been fixed in the city, has produced men chiefly engaged in mercantile pursuits; but the sons, of whom there were five, all studied medicine, and although only one of these became a practicing physician, their children have carried on the family tradition in this line.

On the outskirts of another New Jersey town, in a beautiful old homestead, inherited from his mother, lives a grandson of Frederick Kallikak, oldest son of Martin. He is a courteous, scholarly man of the old school. His home is rendered particularly attractive by the presence of his southern wife and two charming daughters. In his possession are numerous articles belonging to his great-grandfather. This gentleman manifested such an intelligent interest in giving information in regard to his family that it seemed a question of honor to inform him as to the purpose of the investigation, laying bare the facts set forth in this book. He proved to be, perhaps, the one man best qualified in the entire family for entering into an analysis of its characteristics, and this he did freely, in so far as it would serve the ends of the investigation.

Another descendant of Martin Kallikak Sr., a granddaughter of his youngest child, Abbie, had been previously informed regarding the same facts. This lady is a person not only of refinement and culture but is the author of two scholarly genealogical works. She has, for years, been collecting material for a similar study of the Kallikak family. This material she generously submitted to the use of the field worker. In the end she spent an entire day in the completion and revision of

the normal chart presented in this book. No praise can be too high for such disinterested self-forgetfulness in the face of an urgent public need. We owe to these two persons most of the information which has made possible the study of the normal side of this family.

Of Martin Kallikak Sr., himself, the record of many characteristic traits has been preserved. As stated in another chapter, his father died when he was a lad of fifteen. The father, in his will, after enumerating certain personal bequests to his wife, recommends the selling of the homestead farm, in order to provide for the education of his children. There is a quaint document still in existence, in which Martin Kallikak, having attained his majority, agrees to pay £250 to each of his three "spinster" sisters, still minors, in return for a quitclaim deed of the homestead farm. This was a considerable burden for a young man to assume, but it seems to have given him the impetus which later made him a rich and prosperous farmer.

He had joined the Revolutionary Army in April, 1776. Two years later he was wounded in a way to disable him for further service, and he then returned to the home farm. During the summer of enforced idleness he wooed and won the heart of a young woman of good Quaker family. Her shrewd old father, how-

ever, refused to give his consent. To his objections, based on the ground that Martin did not own enough of this world's goods, the young man is recorded as saying, "Never mind. I will own more land than ever thou did, before I die," which promise he made true. That the paternal objection was overruled is proven by the registry of marriages, which gives the date of Martin's union with the Quakeress as January, 1779.

The old Bible of Casper Kallikak, one of the family heirlooms, is in the possession of a Reverend Mr. —, who is descended from Casper through the line of one of his daughters. This Bible was bought in 1704 and is still in an excellent state of preservation, for, although time-stained, the pages are intact and there still may be seen in legible handwriting the family record penned so long ago. On a flyleaf, is a quaint verse in which old Casper bequeaths the volume to his eldest son, bidding him, "So oft as in it he doth looke" remember how his father had "aye been guided by ye precepts in this booke," and enjoining him to walk in the same safe way.

CHAPTER V

WHAT IS TO BE DONE ?

No one interested in the progress of civilization can contemplate the facts presented in the previous chapters without having the question arise, Why isn't something done about this ? It will be more to the point if we put the question, Why do *we* not *do* something about it ? We are thus face to face with the problem in a practical way and we ask ourselves the next question, What *can* we do ? For the low-grade idiot, the loathsome unfortunate that may be seen in our institutions, some have proposed the lethal chamber. But humanity is steadily tending away from the possibility of that method, and there is no probability that it will ever be practiced.

But in view of such conditions as are shown in the defective side of the Kallikak family, we begin to realize that the idiot is not our greatest problem. He is indeed loathsome ; he is somewhat difficult to take care of ; nevertheless, he lives his life and is done. He does not continue the race with a line of children like himself.

Because of his very low-grade condition, he never becomes a parent.

It is the moron type that makes for us our great problem. And when we face the question, "What is to be done with them — with such people as make up a large proportion of the bad side of the Kallikak family?" we realize that we have a huge problem.

The career of Martin Kallikak Sr. is a powerful sermon against sowing wild oats. Martin Kallikak did what unfortunately many a young man like him has done before and since, and which, still more unfortunately, society has too often winked at, as being merely a side step in accordance with a natural instinct, bearing no serious results. It is quite possible that Martin Kallikak himself never gave any serious thought to his act, or if he did, it may have been merely to realize that in his youth he had been indiscreet and had done that for which he was sorry. And being sorry he may have thought it was atoned for, as he never suffered from it any serious consequences.

Even the people of his generation, however much they may have known about the circumstances, could not have begun to realize the evil that had been done. Undoubtedly, it was only looked upon as a sin because it was a violation of the moral law. The real sin of

peopling the world with a race of defective degenerates who would probably commit his sin a thousand times over, was doubtless not perceived or realized. It is only after the lapse of six generations that we are able to look back, count up and see the havoc that was wrought by that one thoughtless act.

Now that the facts are known, let the lesson be learned; let the sermons be preached; let it be impressed upon our young men of good family that they dare not step aside for even a moment. Let all possible use be made of these facts, and something will be accomplished.

But even so the real problem will not be solved. Had Martin Kallikak remained in the paths of virtue, there still remained the nameless feeble-minded girl, and there were other people, other young men, perhaps not of as good a family as Martin, perhaps feeble-minded like herself, capable of the same act and without Martin's respectability, so that the race would have come down even worse if possible than it was, because of having a worse father.

Others will look at the chart and say, "The difficulty began with the nameless feeble-minded girl; had she been taken care of, all of this trouble would have been avoided." This is largely true. Although feeble-

mindedness came into this family from other sources in two generations at least, yet nevertheless these sources were other feeble-minded persons. When we conclude that had the nameless girl been segregated in an institution, this defective family would not have existed, we of course do not mean that one single act of precaution, in that case, would have solved the problem, but we mean that all such cases, male and female, must be taken care of, before their propagation will cease. The instant we grasp this thought, we realize that we are facing a problem that presents two great difficulties; in the first place the difficulty of knowing who are the feeble-minded people; and, secondly, the difficulty of taking care of them when they are known.

A large proportion of those who are considered feeble-minded in this study are persons who would not be recognized as such by the untrained observer. They are not the imbeciles nor idiots who plainly show in their countenances the extent of their mental defect. They are people whom the community has tolerated and helped to support, at the same time that it has deplored their vices and their inefficiency. They are people who have won the pity rather than the blame of their neighbors, but no one has seemed to suspect the real cause

of their delinquencies, which careful psychological tests have now determined to be feeble-mindedness.

The second difficulty is that of caring for this large army of people. At the lowest estimates of the number needing care, we in the United States are at present caring for approximately one tenth of the estimated number of our mental defectives. Yet many of our States think that they are now being over-taxed for the care of these people, so that it is with great difficulty that legislatures can be induced to appropriate money enough to care for those already in institutions. It is impossible to entertain the thought of caring for ten times as many. Some other method must be devised for dealing with the difficulty.

Before considering any other method, the writer would insist that segregation and colonization is not by any means as hopeless a plan as it may seem to those who look only at the immediate increase in the tax rate. If such colonies were provided in sufficient number to take care of all the distinctly feeble-minded cases in the community, they would very largely take the place of our present almshouses and prisons, and they would greatly decrease the number in our insane hospitals. Such colonies would save an annual loss in property and life, due to the action of these irresponsible people,

sufficient to nearly, or quite, offset the expense of the new plant. Besides, if these feeble-minded children were early selected and carefully trained, they would become more or less self-supporting in their institutions, so that the expense of their maintenance would be greatly reduced.

In addition to this, the number would be reduced, in a single generation, from 300,000 (the estimated number in the United States) to 100,000, at least,— and probably even lower. (We have found the hereditary factor in 65 per cent of cases ; while others place it as high as 80 per cent.)

This is not the place for arguing the question or producing the statistics to substantiate these statements. Suffice it to say that every institution in the land has a certain proportion of inmates who not only earn their own living, but some who could go out into the world and support themselves, were it not for the terrible danger of procreation, — resulting in our having not one person merely, but several to be cared for at the expense of the State. These statements should be carefully considered and investigated before any one takes the stand that segregation in colonies and homes is impossible and unwise for the State.

The other method proposed of solving the problem

is to take away from these people the power of procreation. The earlier method proposed was unsexing, asexualization, as it is sometimes called, or the removing, from the male and female, the necessary organs for procreation. The operation in the female is that of ovariectomy and in the male of castration.

There are two great practical difficulties in the way of carrying out this method on any large scale. The first is the strong opposition to this practice on the part of the public generally. It is regarded as mutilation of the human body and as such is opposed vigorously by many people. And while there is no rational basis for this, nevertheless we have, as practical reformers, to recognize the fact that the average man acts not upon reason, but upon sentiment and feeling; and as long as human sentiment and feeling are opposed to this practice, no amount of reasoning will avail. It may be shown over and over again that many a woman has had the operation of ovariectomy performed in order to improve her physical condition, and that it is just as important to improve the moral condition as the physical. Nevertheless, the argument does not convince, and there remains the opposition as stated.

In recent years surgeons have discovered another method which has many advantages. This is also

sometimes incorrectly referred to as asexualization. It is more properly spoken of as sterilization, the distinction being that it does not have any effect on the sex qualities of the man or woman, but does artificially take away the power of procreation by rendering the person sterile. The operation itself is almost as simple in males as having a tooth pulled. In females it is not much more serious. The results are generally permanent and sure. Objection is urged that we do not know the consequences of this action upon the physical, mental, and moral nature of the individual. The claim is made that it is good in all of these. But it must be confessed that we are as yet ignorant of actual facts. It has been tried in many cases; no bad results have been reported, while many good results have been claimed.

A more serious objection to this last method comes from a consideration of the social consequences. What will be the effect upon the community in the spread of debauchery and disease through having within it a group of people who are thus free to gratify their instincts without fear of consequences in the form of children? The indications are that here also the evil consequences are more imaginary than real, since the feeble-minded seldom exercise restraint in any case.

Probably the most serious difficulty to be overcome before the practice of sterilization in any form could come into general use would be the determining of what persons were proper subjects to be operated upon.¹

This difficulty arises from the fact that we are still ignorant of the exact laws of inheritance. Just how mental characteristics are transmitted from parent to child is not yet definitely known. It therefore becomes a serious matter to decide beforehand that such and such a person who has mental defect would certainly transmit the same defect to his offspring and that consequently he ought not to be allowed to have offspring.

THE MENDELIAN LAW

In 1866 an Austrian monk by the name of Gregor Mendel discovered and published a law of inheritance in certain plants, which, after lying practically unknown for nearly forty years, was rediscovered in 1900 and since then has been tested with regard to a great many plants and animals.

Mendel found that there were certain peculiarities in plants which he termed "unit characters" that were

¹At present eight states have laws authorizing some form of asexualization or sterilization. But in all these cases the practice is carefully restricted to a few inmates of various specified institutions.

transmitted from parent to offspring in a definite way. His classical work was on the propagation of the ordinary garden pea, in which case he found that a quality like tallness, as contrasted with dwarfness, was transmitted as follows:—

If tall and dwarf peas were crossed, he found in the first generation nothing but tall peas. But if these peas were allowed to grow and fertilize themselves, in the next generation he got tall and dwarf peas in the ratio of three to one. The dwarf peas in this case bred true, *i.e.* when they were planted by themselves and self-fertilized there was never anything but dwarf peas, no matter how many generations were tested. On the other hand, the tall peas were divisible by experiment into two groups; first, those that always bred true, *viz.* always tall peas; and secondly, another group that bred tall and dwarf in the same ratio of three to one; and from these the same cycle was repeated. Mendel called the character, which did *not* appear in the first generation (dwarfness), “recessive”; the other (tallness) he called “dominant.” The recessive factor is now generally considered to be due to the absence of something which, if present, would give the dominant factor. According to this view, dwarfness is simply the absence of tallness.

This law has been found to hold true for many unit characters in many plants and animals. Since study in human heredity has been taken up, it has been a natural question, Does this same law apply to human beings? It has been found that it does apply in the case of many qualities, like color of hair, albinism, brachydactylism, and other peculiarities. Investigation has of late been extended to mental conditions. Rosanoff has shown pretty clearly that the law applies in the case of insanity, while Davenport and Weeks have shown evidence that it applies in cases of epilepsy.

Our own studies lead us to believe that it also applies in the case of feeble-mindedness, but this will be taken up in a later work to which we have already referred. We do not know that feeble-mindedness is a "unit character." Indeed, there are many reasons for thinking that it cannot be. But assuming for the sake of simplifying our illustration that it is a "unit character," then we have something like the following conditions.

If two feeble-minded people marry, then we have the same unit character in both, and all of the offspring will be feeble-minded; and if these offspring select feeble-minded mates, then the same thing will continue. But what will happen if a feeble-minded person takes a normal mate? If feeble-mindedness is recessive (due

to the absence of something that would make for normality), we would expect in the first generation from such a union all normal children, and if these children marry persons like themselves, *i.e.* the offspring of one normal and one defective parent, then the offspring would be normal and defective in the ratio of three to one. Of the normal children, one third would breed true and we would have a normal line of descent.

Without following the illustration further, we see already that it is questionable whether we ought to say that the original feeble-minded individual should have been sterilized because he was feeble-minded. We see that in the first generation all of his children were normal and in the next generation one fourth of them were normal and bred true. We should not forget, however, that one fourth of his grandchildren would be feeble-minded and that two other fourths had the power of begetting feeble-minded children. We must not forget, either, that these are averages, and that for the full carrying out of these figures there must be a large enough number of offspring to give the law of averages room to have full play. In other words, any marriage which, according to the Mendelian principle, would give normals and defectives in the ratio of three to one might result in only one child. That child might hap-

pen to be one of the feeble-minded ones, and so there is propagated nothing but the feeble-minded type. It is equally true that it might be the normal child, with a consequent normal line of descendants; or still again, it might be one of the intermediate ones that are capable of reproducing again the ratio of three normal to one defective, so that the chance is only one in four of such offspring starting a normal line.

Let us now turn to the facts as we have them in the Kallikak family. The only offspring from Martin Kallikak Sr. and the nameless feeble-minded girl was a son who proved to be feeble-minded. He married a normal woman and had five feeble-minded children and two normal ones. This is in accordance with Mendelian expectation; that is to say, there should have been part normal and part defective, half and half, if there had been children enough to give the law of averages a chance to assert itself. The question, then, comes right there. Should Martin Jr. have been sterilized? We would thus have saved five feeble-minded individuals and their horrible progeny, but we would also have deprived society of two normal individuals; and, as the results show, these two normals married normal people and became the first of a series of generations of normal people.

Taking this family as a whole, we have the following figures : —

There were 41 matings where both parents were feeble-minded. They had 222 feeble-minded children, with two others that were considered normal. These two are apparent exceptions to the law that two feeble-minded parents do not have anything but feeble-minded children. We may account for these two exceptions in one of several ways. Either there is a mistake in calling them normal, or a mistake in calling the parents feeble-minded ; or else there was illegitimacy somewhere and these two children did not have the same father as the others of the family. Or we may turn to the Mendelian law and we discover that according to that law there might be in rare instances such a combination of circumstances that a normal child might be born from two parents that function as feeble-minded. For practical purposes it is, of course, pretty clear that it is safe to assume that two feeble-minded parents will never have anything but feeble-minded children.

Again, we find that there were eight cases where the father was feeble-minded and the mother normal, and there were ten normal children and ten defective.

There were twelve cases where the father was normal and the mother feeble-minded, with seven feeble-minded

children and ten normal. Both of these are in accordance with Mendelian expectations.

We further find that in the cases where one parent was feeble-minded and the other undetermined, the children were nearly all feeble-minded, from which we might infer that the probabilities are great that the unknown parent was also feeble-minded.

We shall not go further into this matter in the present paper, but leave the detailed study of this family from the Mendelian standpoint for further consideration, when we take up the large amount of data which we have on three hundred other families. Enough is here given to show the possibility that the Mendelian law applies to human heredity. If it does, then the necessity follows of our understanding the exact mental condition of the ancestors of any person upon whom we may propose to practice sterilization.

From all of this the one caution follows. At best, sterilization is not likely to be a final solution of this problem. We may, and indeed I believe must, use it as a help, as something that will contribute toward the solution, until we can get segregation thoroughly established. But in using it, we must realize that the first necessity is the careful study of the whole subject, to the end that we may know more both about the

laws of inheritance and the ultimate effect of the operation.

CONCLUSION AND RÉSUMÉ

The Kallikak family presents a natural experiment in heredity. A young man of good family becomes through two different women the ancestor of two lines of descendants, — the one characterized by thoroughly good, respectable, normal citizenship, with almost no exceptions; the other being equally characterized by mental defect in every generation. This defect was transmitted through the father in the first generation. In later generations, more defect was brought in from other families through marriage. In the last generation it was transmitted through the mother, so that we have here all combinations of transmission, which again proves the truly hereditary character of the defect.

We find on the good side of the family prominent people in all walks of life and nearly all of the 496 descendants owners of land or proprietors. On the bad side we find paupers, criminals, prostitutes, drunkards, and examples of all forms of social pest with which modern society is burdened.

From this we conclude that feeble-mindedness is largely responsible for these social sores.

Feeble-mindedness is hereditary and transmitted as surely as any other character. We cannot successfully cope with these conditions until we recognize feeble-mindedness and its hereditary nature, recognize it early, and take care of it.

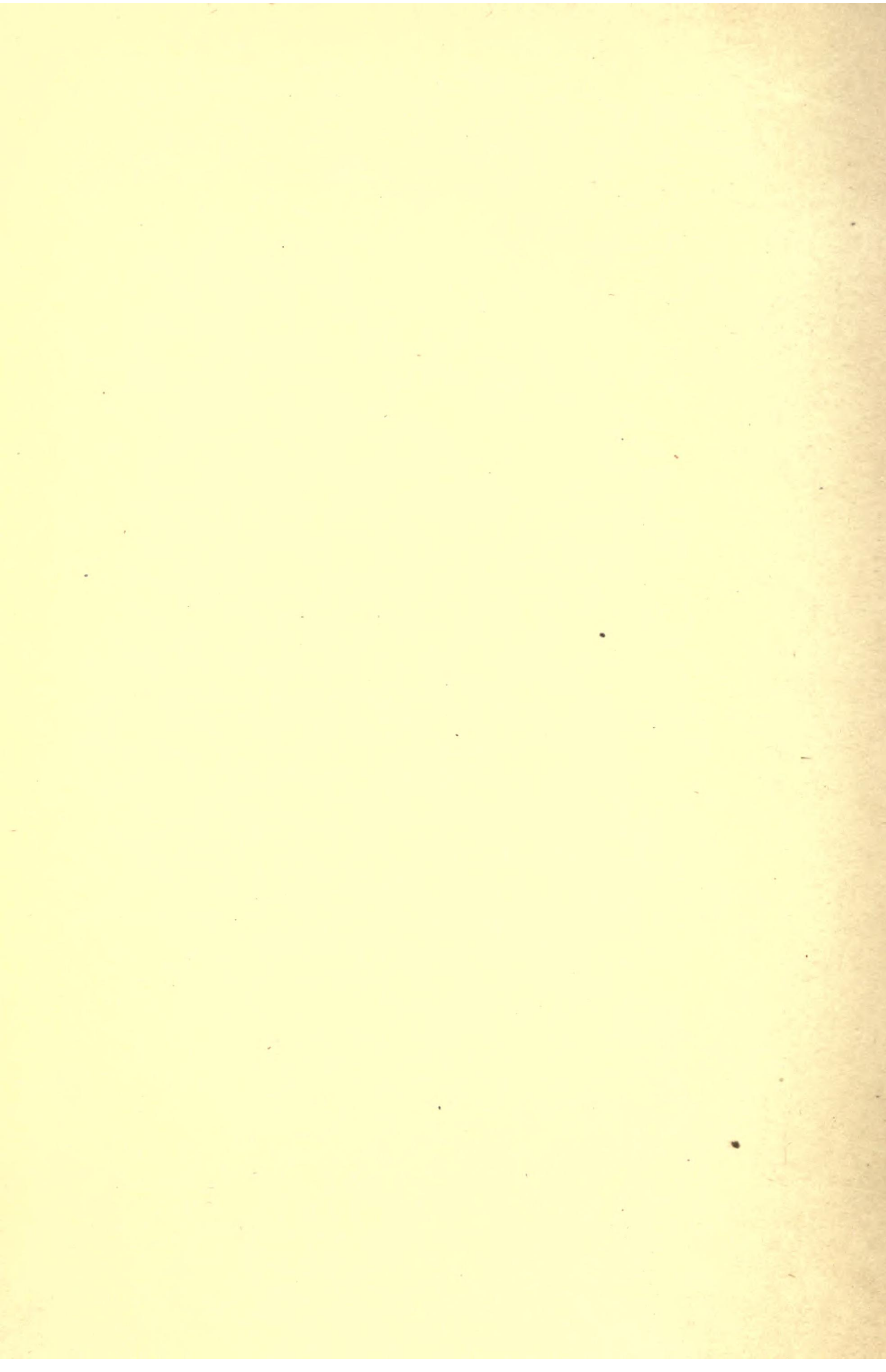
In considering the question of care, segregation through colonization seems in the present state of our knowledge to be the ideal and perfectly satisfactory method. Sterilization may be accepted as a makeshift, as a help to solve this problem because the conditions have become so intolerable. But this must at present be regarded only as a makeshift and temporary, for before it can be extensively practiced, a great deal must be learned about the effects of the operation and about the laws of human inheritance.

INDEX

- Abigail, 28.
 Albert, 24.
 Alcoholism, 18, 26.
 of the good side, 29, 30.
 in the bad family, 67.
 children, 25.
 Guss Saunders, a victim, 93.
 in the two branches compared, 67.
 Almshouse, 28.
 Almshouses reduced if feeble-minded
 were cared for, 105.
 Asexualization, 107.
- B——, the town mentioned, 79.
 Barrah, Eunice, 26.
 Beede, 29.
 Bible of Casper Kallikak, 100.
 Binet tests in the public schools, 71.
 used with the Kallikak family, 88, 89.
- Charts, heredity, 33-49.
 Children of Althea Haight, 23.
 Colonies for feeble-minded, 105.
 Colonization, not hopeless, 105.
 Cordelia, 25.
 Cousins marry, 26.
 Crime, tendency to, different in different
 families, 62.
 Criminals, 18.
 made, not born, 54.
 Criminology and feeble-mindedness, 54,
 60.
- Deborah, admitted to the Training
 School, 1.
 as she is to-day, 7.
 her ability in numbers, 9-11.
 brought to the Training School, 65.
 her cousin in the Training School, 21.
 her half brother, 27, 62.
 her half brothers and sisters, 28.
 her half sister, 27.
 her mother, Martha, characterized,
 65.
 her mother, Martha, further history,
 64.
 her Institution records, 2-6.
 her Santa Claus letters, 8.
- Declaration of Independence, signed by
 relatives of this family, 30.
 Deed from the governor of the colony
 to the Kallikak family, 95.
 Degenerates, 29.
 Delirium tremens, 25.
 Detention home of the Juvenile Court,
 number of feeble-minded children
 found, 57.
 Died in infancy, 18.
 Dugdale, Richard L., work of, 51.
- Edwards, Jonathan, 51.
 Edwards family, 59, 60.
 Elmira Reformatory, number of feeble-
 minded, 58.
 Elopement, 26.
 Environment, 61.
 and criminology, 59.
 determines criminality, 55.
 effect of, shown, 22.
 same for both branches, 50.
 Epileptics, 18.
 "Old Moll," 22.
 Euthenist, claims, 52.
 Explanation of charts, 33-35.
- Feeble-minded, number in the entire
 group, 19.
 number in public institutions, 56.
 number in the United States being
 cared for, 106.
 the dupes of others, 55.
 reduction in the number of through
 segregation, 105.
 Feeble-mindedness, how determined, 14.
 difficulty of recognizing, 104.
 difficulty of caring for the, 105.
 is hereditary, 117.
 Field workers, their training and
 methods, 13, 82.
 Frederick, 17.
 half brother to Martin, 85.
- Gaston, 29.
 Good family, the, 29.
 character of descendants, 30.
 defective children brought up in, 61.

- Governor of New Jersey, colonial, relation to Kallikak family, 95.
 Gregory, 25.
 Guss, 24, 74.
 Gypsy camp, 75.
- Haight, Althea, 20-23.
 Haight, Eva, 26.
 Hardscrabble, 89.
 Harriet, 25.
 Heredity charts, 33-49.
 Heredity in Jukes family, 54.
 Home for feeble-minded, Deborah's sister placed in, 27.
 Horse thief, 29.
 Horser, 21.
 his marriage to Jemima, 84.
- Ill fame, kept house of, 19, 68.
 Illegitimate: child, 27.
 children of Martha, 27.
 number in bad family, 18.
 Incendiarism, 27.
 Incest, 28.
 Insane hospitals, number of feeble-minded in, 56.
 reduced if feeble-minded were cared for, 105.
 Institutions and feeble-mindedness, 56.
- James, son of Martin Jr., 21.
 Jemima, 21.
 marries Horser, 84.
 Jones, Amy, 22.
 Joseph, 26.
 three sons of, 71, 75.
 Jukes family, 51, 60.
 heredity question, 53.
 study, incomplete, 52.
 Justin Kallikak, daughter of, 62.
 Justin, son of Millard, 24.
 Juvenile Courts, feeble-minded children found, 57.
- Kallikak, "Daddy," 20.
 Kallikak family, further facts about, 70.
 bad matings in, 114.
 stories of the good branch of the, 93-100.
 and Mendelian inheritance, 113.
 Kallikak, Justin, 26.
 Kallikak, Martin, Sr., 17, 29.
 a sermon, 102.
 joins the militia, 18.
 his sin, 102.
 wife of, 29.
- Kallikak, Martin, Jr., 17, 51, 61.
 his family compared with the Jukes-Edwards, 53.
 his half brother, Frederick, 85.
 should he have been sterilized? 113.
 Kallikak, Millard, 19, 23.
 second wife of, 26.
 Key to charts, 33-35.
 Killed in accident, 26.
 Kite, Elizabeth S., 71.
- Lavinia, 24.
 Lombroso, 59.
- Margaret, 28.
 Martha, mother of Deborah, 27.
 character of her children, 64.
 Massachusetts Reformatory, feeble-minded girls in, 57.
 Matings in the Kallikak family, 114.
 Mendelian expectation, 24.
 Mendelian Law, the, 109.
 Mendelism, applied to human inheritance, 111.
 Mental capacity, necessity of determining, 60.
 Minister who married Guss, 75.
 Miscarriage, 28.
 Mongolian type, 20.
 Morons, 62, 54.
 Murder, Guss accused, 75.
 Mute, 25.
- Nameless feeble-minded girl, 29.
 relation to the problem, 103.
 Nathan, 20.
 Newark, number of feeble-minded children in Juvenile Court, 57.
 Normal people, in good branch of the family, 29.
 Normal woman in bad family, daughter of Sylvia, 22.
- "Old Horror," 19, 80.
 "Old Max," 52.
 "Old Moll," 21, 79.
 described, 83.
 her death, 83.
 "Old Sal," 21, 79.
- Paula, 25.
 Pauperism and feeble-mindedness, 60.
 Placing out, 27.
 Prince, 25.
 Prisons reduced if feeble-minded were cared for, 105.

- Probation, girls on, 57.
 Prominent man, sister of, married Mil-
 lard Kallikak, 26.
 Prostitutes, 18.
 number of feeble-minded, 58.
 Prostitution and feeble-mindedness, 56.
 Public institutions and feeble-minded-
 ness, 56.
 Quakeress, married Martin Kallikak, 99.
 Rahway Reformatory, number of feeble-
 minded in, 57.
 Refinement, an element of, seen in
 Deborah's mother, 63.
 Reformatories, number of feeble-minded
 in, 57.
 Resident, an old, of B—, 81.
 Sanders, 25.
 Saunders, Guss, grandson of "Old Sal"
 visited, 89-91.
 School work for defectives, 54.
 Segregation and colonization not hope-
 less, 105.
 Sexually immoral, number in bad
 family, 18.
 on the good side, 29.
 children, 25.
 Sheep, flock of, stolen, 20.
 Slums, largely caused by defectives, 70.
 Sterilization, 107.
 as a solution of the problem, 115.
 Still birth, 28.
 Stupidity, compared with criminalistic
 tendency, 63.
 Sylvia, 22.
 Symbols, explanation of, 33-35.
 Syphilitic, 26.
 woman, 25.
 Temperament, differences of, in the
 Kallikak family, 63.
 relation to feeble-mindedness and
 criminology, 55.
 Thomas, 25.
 Training School at Vineland, 21.
 Deborah brought to, 65.
 Traits of the family, reappearance of, 51.
 Undetermined, definition, 19.
 Vasectomy, 108.
 Warren, 24.
 Winship, Dr., 51, 59.
 Zabeth, Rhoda, 19, 61.



THE following pages contain advertisements
of Macmillan books on kindred subjects.

The Laws of Heredity

By G. ARCHDALL REID, M.B., F.R.S.E.

With a Diagrammatic Representation,

By HERBERT HALL TURNER,

Savilian Professor of Astronomy, Oxford

Cloth, 8vo, xi + 548 pages, \$5.50 net; by mail, \$5.04

The question of heredity is one of vital concern to every living being, and any light thrown on the subject by scientific investigations and experiments is of momentous interest to the human race. It is therefore of the utmost importance that every one should have some knowledge of the theories advanced by those who believe in the immutability of the laws of heredity, and also how far these have been proven modifiable by environment and education.

The present volume is a discussion of the entire subject, covering a much wider area than the author's "The Principles of Heredity," and presenting the facts and arguments in a scholarly and yet clear and non-technical manner; the aim being to make it comprehensible to the general reader, as well as to the scientific investigator.

THE MACMILLAN COMPANY

Publishers

64-66 Fifth Avenue

New York

The First Principles of Heredity

By S. HERBERT

M.D. (Vienna), M.R.C.S. (Eng.), L.R.C.P. (Lond.)

Cloth, 8vo, illustrated, \$1.75 net; by mail, \$1.87

This book is the only one of its scope in the English language. It gives a popularly written yet scientific account of all that the average educated reader may desire to know about "Heredity and Kindred Subjects," without assuming any knowledge of the subject on the reader's part.

Heredity and Social Progress

By SIMON N. PATTEN, PH.D., LL.D.

Professor of Political Economy, University of Pennsylvania.

Author of "The New Basis of Civilization," etc.

Cloth, 12mo, \$1.25 net

"With keen philosophic insight Professor Patten, in this book, probes to the roots of biology and plants there the foundations of economics and other social sciences. It is a bold deduction, wrought out with perfect logic, and shows one common principle active in every advance from the lowest unicellular organism to the highest social institution." — *Annals American Academy*.

"It is a book rich in suggestion and presents the subject in a clear and sometimes rather startling manner." — *Ohio Farmer*.

THE MACMILLAN COMPANY

Publishers

64-66 Fifth Avenue

New York

Conduct and its Disorders Biologically Considered

By CHARLES ARTHUR MERCIER, M.D., F.R.C.P., F.R.C.S.,
Physician for Mental Diseases to Charing Cross Hospital; Author of
"A Textbook of Insanity," "Criminal Responsibility," etc.

Cloth, 8vo, xxiii + 377 pages, index, \$3.25 net; by mail, \$3.42

Although Dr. Mercier's work on *Conduct and its Disorders* will be of special service to students of mental disease, the subject is one of such wide interest that other readers, less interested perhaps in its scientific aspects, will find the work full of suggestive information. The author points out that although conduct is what we are all engaged in, from birth to death, and though many departments of conduct are described in many books, there is not in existence, curiously enough, any comprehensive study of conduct as a whole — any general view of the field of human activity. It is this gap that Dr. Mercier has set himself to fill by the present work. The principle on which his exhaustive investigation has been made is the biological principle. He has estimated the various modes and phases of human activity in the light of their value in securing the survival of man in the struggle for existence.

Mendelism

By R. C. PUNNETT, Fellow of Gonville and Caius College, Cambridge; Professor of Biology in the University of Cambridge.

New edition revised and enlarged. Cloth, 12mo, illustrated, \$1.25 net; by mail, \$1.38

"By far the best popular account of Mendelism yet published . . . a model of popular scientific writing, recalling Huxley at his best. . . . Another master of popular scientific writing has well characterized Punnett's book as 'an unsurpassed exposition by an expert investigator.'" — *The Dial*.

"A substantial contribution from one of the most active laboratories of genetics, presented in a readable and attractive form." — *The Nation*.

"As an exposition of Mendelism it is comprehensive, authoritative and clear, and alone in its field." — *Chicago Evening Post*.

"The book sets forth the theory of Mendelism with exceptional clearness, making it especially valuable for the practical gardener or breeder and the general reader, while it may be used as a textbook in biological courses."

— *Springfield Republican*.

THE MACMILLAN COMPANY

Publishers

64-66 Fifth Avenue

New York

Confessio Medici

Cloth, 12mo, \$1.25 net

“A number of exquisite and philosophical essays on the medical art in its broadest aspects, apparently pervaded by a realization of what the science of medicine might be and how far it falls short of its ideals. . . . These essays are delightful to read. They are wise and shrewd, instinct with a knowledge of human nature, with benevolence and with a humility that recognizes its own shortcomings rather than its own attainments.” — *Argonaut*.

“The book abounds in amiable prejudices stated with candour and argued with ingenuity. It is written in many moods, sentimental, practical, reflective, and pugnacious, and in a style that is brisk, sententious, always readable.” — *The Bookman*.

The Conquest of Nerves

BY J. W. COURTNEY, M.D.

Cloth, gilt top, 12mo, viii + 209 pages, index, \$1.25 net; by mail, \$1.33

“After reading many half-baked books on psychotherapy and New Thought, it is refreshing to come upon ‘The Conquest of Nerves,’ by a man who knows his subject and speaks with authority backed by common sense, thinking clearly through a hazy theme and shedding truth with entertaining pungency.” — *Boston Traveler*.

“The book is simple, earnest, and practical.” — *Christian Register*.

“That nerves can be conquered and how they may be is the subject of the doctor’s most unusual and interesting volume, which should find a royal welcome from the many sufferers for whom it was written.” — *Hartford Sunday Post*.

THE MACMILLAN COMPANY

Publishers

64-66 Fifth Avenue

New York

By C. A. HERTER, M.D.,

Professor of Pharmacology and Therapeutics in Columbia University;
Consulting Physician to the City Hospital, New York

The Common Bacterial Infections of the Digestive Tract

And the Intoxications arising from Them

Cloth, 8vo, 360 pages, \$1.50 net; by mail, \$1.53

"The methods of investigating the digestive tract outlined in this volume will prove valuable to the practitioner who would determine the presence of abnormal bacterial processes before the onset of the clinical signs of incurable or highly refractory states of intoxication — and this is the all-sufficient *raison d'être* for the book. Considerable stress has been laid by the author on methods developed in his laboratory, in the belief that their painstaking application will furnish practitioners with reliable indications as to the progress of many cases of infection of the digestive tract." — *Merck's Archives*.

"A very scholarly volume, primarily intended for physicians and students, yet, because of its grave importance and because the subject it treats of is of vital interest to all intelligent readers, we are quite certain the book will be appreciated and read in a far wider circle than its title, which is rather 'professional sounding,' might warrant. We call the reader's attention especially to the last chapter in the book, in which there is expounded much valuable material of common interest." — *Times*.

On Infantilism from Chronic Intestinal Infection

Cloth, 12mo, 240 pages, 90 cents net; by mail, \$1.02

"Dr. Herter's book is bound to have the effect of broadening our conception of the subject of infectious diseases of the intestine, and deserves a wide reading." — *George C. Whipple*.

THE MACMILLAN COMPANY

Publishers

64-66 Fifth Avenue

New York

Introduction to General Science

BY PERCY E. ROWELL, B.Sc.

Cloth 12mo 302 pages \$.75 net

The increasing demand for a thorough, comprehensible, and practical text-book on the subject is met by Rowell's "Introduction to General Science," the distinctive features of which are :

1. The book gives a broad, adequate view of the general field of science. The elements of physics and chemistry receive particular emphasis, but biology, physiography, and several phases of applied science are duly considered.

2. Despite the necessity for treating various sciences, the book is remarkable for its continuity of thought. The interrelation of scientific facts is constantly and clearly pointed out.

3. The treatment is clear-cut, brisk, and thorough, the material well chosen and up to date, while the general workmanship of the book renders it attractive and serviceable.

4. There are over 90 laboratory exercises in the book, a number of them entirely new, and all of them illustrative of the text.

5. Reference reading is encouraged, and lists of carefully selected standard reference books are suggested. Those teachers, however, who do not care to take up detailed work of this sort may give a satisfactory course by using in connection with the book United States Government bulletins alone, to which definite reference is made in the lists of reference readings throughout the book.

TEACHERS

call the book "thorough," "practical," "comprehensive," "clear," "satisfactory," "a great aid to the science teacher."

Mr. N. P. Lawson of Taunton, Washington, writes :

"I have examined Rowell's 'Introduction to General Science' quite carefully. It wears. The more I use it the better I like it. There is room left for the teacher. He doesn't have to crowd himself in. This book can hardly fail to inoculate any one with the bulletin habit, in which I am a firm believer. In its encouragement of wide reading and first-hand acquaintance with books through the excellent references given, this compact little volume is an education in itself. If I were with your company I should wish to push this book. I believe in it."

THE MACMILLAN COMPANY

Publishers

64-66 Fifth Avenue

New York



HQ 753 .G7

SMC

Goddard, Henry Herbert,
1866-1957.

The Kallikak family : a
study in the heredity

AKF-1907



